

```

chain nodes :
  19  20  21  22  27  28  31  32  33  34  35  47  48  51
ring nodes :
  1  2  3  4  5  6  7  8  9  10  11  12  13  14  15  16  17  18  23  24  25
  26  52  53  54  55
chain bonds :
  2-33  5-31  9-32  12-27  14-28  17-35  19-20  19-35  20-21  21-22  22-24
  27-28  31-32  33-34  34-47  47-48  48-51  51-55
ring bonds :
  1-2  1-6  2-3  3-4  4-5  5-6  7-8  7-12  8-9  9-10  10-11  11-12  13-14
  13-18  14-15  15-16  16-17  17-18  23-24  23-26  24-25  25-26  52-53  52-55
  53-54  54-55
exact/norm bonds :
  2-33  5-31  9-32  12-27  14-28  17-35  19-20  19-35  23-24  23-26  24-25
  25-26  27-28  31-32  33-34  34-47  52-53  52-55  53-54  54-55
exact bonds :
  20-21  21-22  22-24  47-48  48-51  51-55
normalized bonds :
  1-2  1-6  2-3  3-4  4-5  5-6  7-8  7-12  8-9  9-10  10-11  11-12  13-14
  13-18  14-15  15-16  16-17  17-18

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G1:C,O

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Match level :
  1:Atom  2:Atom  3:Atom  4:Atom  5:Atom  6:Atom  7:Atom  8:Atom  9:Atom
 10:Atom 11:Atom 12:Atom 13:Atom 14:Atom 15:Atom 16:Atom 17:Atom
 18:Atom 19:CLASS 20:CLASS 21:CLASS 22:CLASS 23:Atom 24:Atom 25:Atom
 26:Atom 27:CLASS 28:CLASS 31:CLASS 32:CLASS 33:CLASS 34:CLASS
 35:CLASS 47:CLASS 48:CLASS 51:CLASS 52:Atom 53:Atom 54:Atom 55:Atom

```

L4 ANSWER 1 OF 6 CAPLUS COPYRIGHT 2005 ACS on STN
 AN 2005:75474 CAPLUS
 DN 142:186921
 TI Polymerizable liquid crystal compound having optically active
 1-alkylethylene or 1-oxo-2-alkylethylene bonding group for display device
 IN Sasata, Yasuyuki; Yanai, Motoki; Yamamoto, Shinichi
 PA Chisso Corp., Japan; Chisso Petrochemical Corporation
 SO Jpn. Kokai Tokkyo Koho, 75 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2005023019	A2	20050127	JP 2003-190323	20030702
PRAI	JP 2003-190323		20030702		

L4 ANSWER 2 OF 6 CAPLUS COPYRIGHT 2005 ACS on STN
 AN 2004:876007 CAPLUS
 DN 141:372868
 TI Liquid crystal film and liquid crystal display device
 IN Matsumoto, Takuya; Mazaki, Hitoshi; Nakamura, Toru; Seki, Takashi
 PA Nippon Oil Corporation, Japan
 SO Eur. Pat. Appl., 34 pp.
 CODEN: EPXXDW
 DT Patent
 LA English
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1469058	A1	20041020	EP 2004-9010	20040415
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR				
	JP 2004315736	A2	20041111	JP 2003-114322	20030418
	US 2004209006	A1	20041021	US 2004-825557	20040414
PRAI	JP 2003-114322	A	20030418		

L4 ANSWER 3 OF 6 CAPLUS COPYRIGHT 2005 ACS on STN
 AN 2004:680316 CAPLUS
 DN 141:197448
 TI Polymerizable compounds, their liquid crystal compositions, their
 polymers, and their uses
 IN Sasata, Yasuyuki; Saegusa, Kazuhiko
 PA Chisso Corp., Japan; Chisso Petrochemical Corporation
 SO Jpn. Kokai Tokkyo Koho, 67 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004231638	A2	20040819	JP 2003-421916	20031219
	US 2004222403	A1	20041111	US 2004-752295	20040105
PRAI	JP 2003-567	A	20030106		
OS	MARPAT 141:197448				

L4 ANSWER 4 OF 6 CAPLUS COPYRIGHT 2005 ACS on STN
 AN 2004:286762 CAPLUS
 DN 140:304210
 TI (meth)acrylic compound having an oxetanyl group and liquid crystal film
 produced by using the same
 IN Matsumoto, Takuya; Mazaki, Hitoshi; Nakamura, Toru; Kobayashi, Masaaki
 PA Nippon Oil Corporation, Japan
 SO Eur. Pat. Appl., 37 pp.

CODEN: EPXXDW

DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1405850	A1	20040407	EP 2003-103578	20030926
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
	JP 2004123597	A2	20040422	JP 2002-289226	20021001
	JP 2004123882	A2	20040422	JP 2002-289227	20021001
PRAI	JP 2002-289226	A	20021001		
	JP 2002-289227	A	20021001		
OS	MARPAT 140:304210				

L4 ANSWER 5 OF 6 CAPLUS COPYRIGHT 2005 ACS on STN

AN 2003:257880 CAPLUS

DN 138:278519

TI Liquid crystalline oxetane compound, polymerizable liquid crystalline composition, manufacture of liquid crystal film, optical film, and liquid crystal display device

IN Matsumoto, Takuya; Masaki, Hitoshi

PA Nippon Oil Corporation, Japan

SO Jpn. Kokai Tokkyo Koho, 12 pp.

CODEN: JKXXAF

DT Patent
LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003096066	A2	20030403	JP 2001-286652	20010920
	WO 2003029235	A1	20030410	WO 2002-JP9119	20020906
	W: CN, KR, US				
	RW: DE, FR, GB, NL				
	EP 1428823	A1	20040616	EP 2002-800224	20020906
	R: DE, FR, GB, NL				
	US 2004173773	A1	20040909	US 2004-801459	20040316
PRAI	JP 2001-286652	A	20010920		
	WO 2002-JP9119	W	20020906		
OS	MARPAT 138:278519				

L4 ANSWER 6 OF 6 CAPLUS COPYRIGHT 2005 ACS on STN

AN 2002:276099 CAPLUS

DN 136:301883

TI Preparation and use of polymerizable liquid crystalline dioxetanes for liquid crystal displays

IN Lub, Johan

PA Koninklijke Philips Electronics N.V., Neth.

SO PCT Int. Appl., 28 pp.

CODEN: PIXXD2

DT Patent
LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002028985	A1	20020411	WO 2001-EP10992	20010921
	W: CN, JP, KR				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
	EP 1337602	A1	20030827	EP 2001-986312	20010921
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				
	JP 2004510785	T2	20040408	JP 2002-532556	20010921
	US 2003111640	A1	20030619	US 2001-969700	20011003

US 6660344 B2 20031209
PRAI EP 2000-203459 A 20001004
WO 2001-EP10992 W 20010921
OS MARPAT 136:301883

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

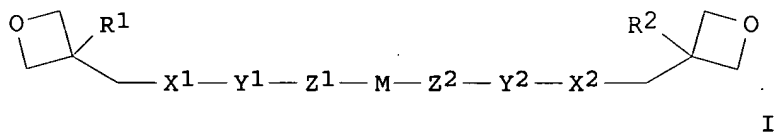
AN 2002:276099 CAPLUS
 DN 136:301883
 ED Entered STN: 12 Apr 2002
 TI Preparation and use of polymerizable liquid crystalline dioxetanes for liquid crystal displays
 IN Lub, Johan
 PA Koninklijke Philips Electronics N.V., Neth.
 SO PCT Int. Appl., 28 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 IC ICM C09K019-34
 ICS C09K019-38; C07D305-06
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
 Section cross-reference(s): 73, 75

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002028985	A1	20020411	WO 2001-EP10992	20010921
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	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
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	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				
	JP 2004510785	T2	20040408	JP 2002-532556	20010921
	US 2003111640	A1	20030619	US 2001-969700	20011003
	US 6660344	B2	20031209		
PRAI	EP 2000-203459	A	20001004		
	WO 2001-EP10992	W	20010921		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2002028985	ICM	C09K019-34
	ICS	C09K019-38; C07D305-06
JP 2004510785	FTERM	4C048/TT02; 4C048/UU03; 4C048/XX01; 4C048/XX04; 4C048/XX10; 4H027/BA11; 4H027/BD01; 4H027/BD07; 4H027/DH01
US 2003111640	ECLA	C07D305/06; C09K019/34A; C09K019/38; C09K019/38B6
OS	MARPAT	136:301883
GI		



AB New photopolymerizable liquid crystalline dioxetane compds. are provided. having the general formula I (R1, R2 = C1-4-alkyl, H; X1, X2 = O, S, single covalent bond, -O-CO-, -CO-O-, -O-CO-O-; Y1, Y2 = C1-30-spacer groups, in which the carbon chain may be interrupted by oxygen in the ether function or by sulfur in the thioether function; Z1, Z2 = O, S, single covalent bond, -O-CO-, -CO-O-, -O-CO-O-; M is any suitable mesogenic group). Also, compns. are provided containing one or more compds. of the formula I, as well as methods of preparing said compds. and compns. These compds. and compns. show excellent characteristics upon polymerization, such as improved non-shrinking properties, and are useful in a variety of applications, in particular in liquid crystal devices, sensors, and optical precision

instruments.

ST polymerizable liq cryst dioxetane display device; liq cryst polymer dioxetane display device

IT Liquid crystal displays
(preparation and use of polymerizable liquid crystalline dioxetanes for)

IT Liquid crystals, polymeric
(preparation and use of polymerizable liquid crystalline dioxetanes for liquid crystal displays)

IT 67900-64-5P, 3-(4-Bromo-phenoxy)-propan-1-ol 196864-49-0P 409083-23-4P 409083-28-9P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(in synthesis of liquid crystalline dioxetanes)

IT 95-71-6, Methylhydroquinone 106-41-2, 4-Bromophenol 120-47-8, Ethyl 4-hydroxybenzoate 123-31-9, Hydroquinone, reactions 627-30-5, 3-Chloro-1-propanol 99314-44-0 103781-35-7
RL: RCT (Reactant); RACT (Reactant or reagent)
(in synthesis of liquid crystalline dioxetanes)

IT 409083-32-5P 409083-36-9P 409083-41-6P 409083-45-0P 409083-47-2P 409083-49-4P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and use of polymerizable liquid crystalline dioxetanes)

IT 409083-51-8P 409083-53-0P
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(preparation and use of polymerizable liquid crystalline dioxetanes)

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Basf Ag; DE 4408171 A 1995 CAPLUS

(2) Sasaki, H; J PHOTOPOLYM SCI TECHNOL 2000, V13(1), P119 CAPLUS

(3) Toagosei Co Ltd; EP 1069120 A 2001 CAPLUS

(4) Ube Ind Ltd; JP 11106380 A 1999 CAPLUS

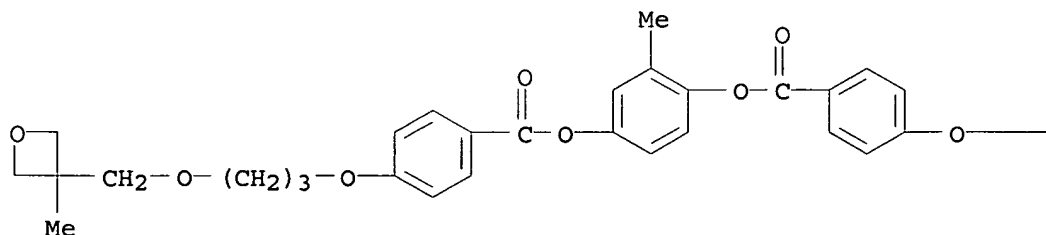
(5) Ube Ind Ltd; JP 11246540 A 1999 CAPLUS

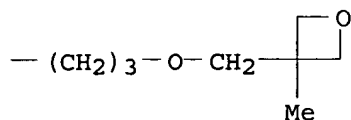
IT 409083-32-5P 409083-36-9P 409083-41-6P 409083-45-0P 409083-47-2P 409083-49-4P
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(preparation and use of polymerizable liquid crystalline dioxetanes)

RN 409083-32-5 CAPLUS

CN Benzoic acid, 4-[3-[(3-methyl-3-oxetanyl)methoxy]propoxy]-, 2-methyl-1,4-phenylene ester (9CI) (CA INDEX NAME)

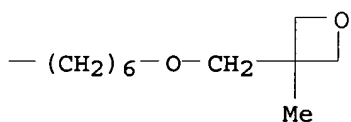
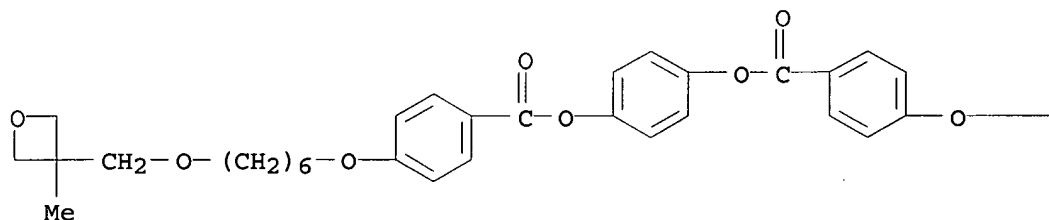
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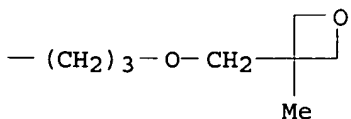
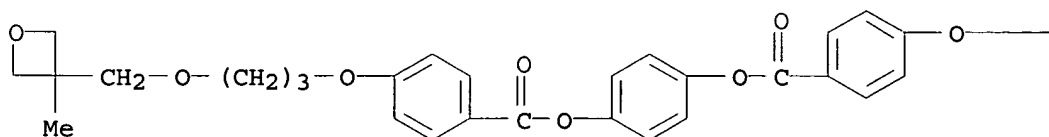
RN 409083-36-9 CAPLUS

CN Benzoic acid, 4-[[6-[(3-methyl-3-oxetanyl)methoxy]hexyl]oxy]-, 1,4-phenylene ester (9CI) (CA INDEX NAME)



RN 409083-41-6 CAPLUS

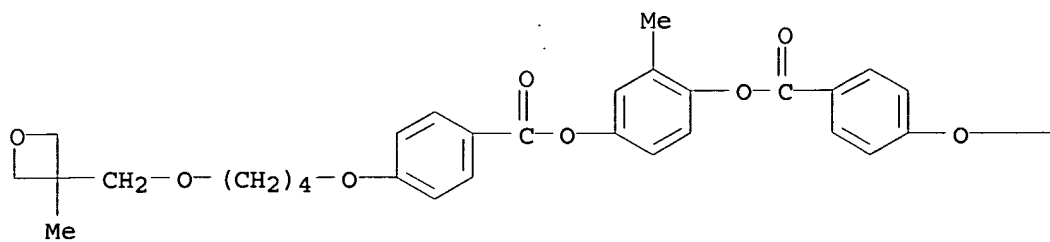
CN Benzoic acid, 4-[3-[(3-methyl-3-oxetanyl)methoxy]propoxy]-, 1,4-phenylene ester (9CI) (CA INDEX NAME)



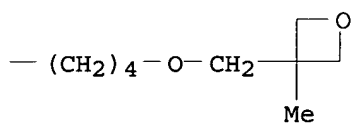
RN 409083-45-0 CAPLUS

CN Benzoic acid, 4-[4-[(3-methyl-3-oxetanyl)methoxy]butoxy]-, 2-methyl-1,4-phenylene ester (9CI) (CA INDEX NAME)

PAGE 1-A

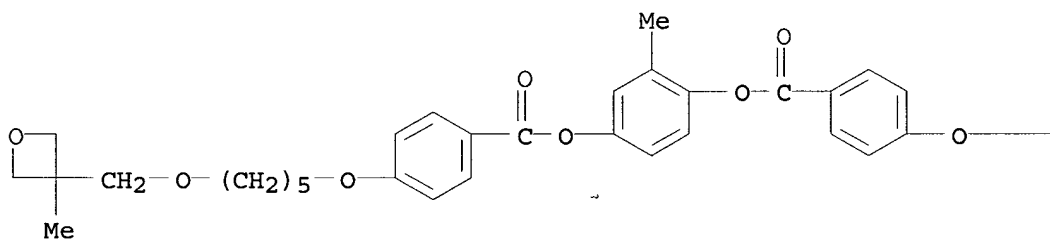


PAGE 1-B

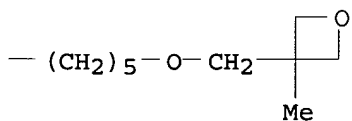


RN 409083-47-2 CAPLUS
 CN Benzoic acid, 4-[[5-[(3-methyl-3-oxetanyl)methoxy]pentyl]oxy]-, 2-methyl-1,4-phenylene ester (9CI) (CA INDEX NAME)

PAGE 1-A

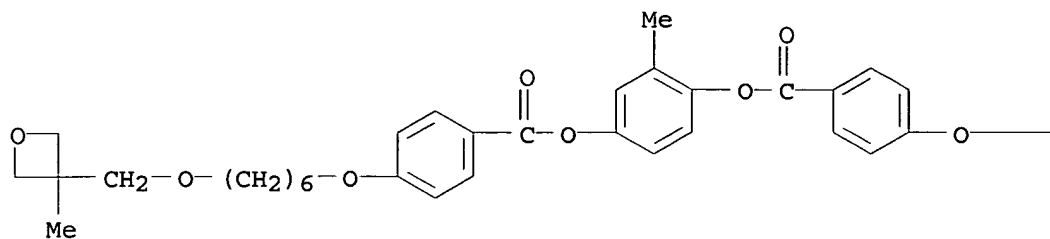


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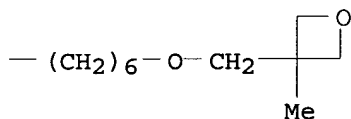


RN 409083-49-4 CAPLUS
 CN Benzoic acid, 4-[[6-[(3-methyl-3-oxetanyl)methoxy]hexyl]oxy]-, 2-methyl-1,4-phenylene ester (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



IT 409083-51-8P 409083-53-0P

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses).
(preparation and use of polymerizable liquid crystalline dioxetanes)

RN 409083-51-8 CAPLUS

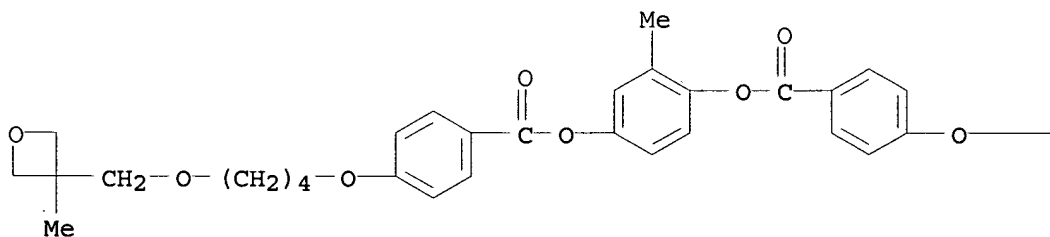
CN Benzoic acid, 4-[4-[(3-methyl-3-oxetanyl)methoxy]butoxy]-, 2-methyl-1,4-phenylene ester, polymer with Cyacure UVI 6990 (9CI) (CA INDEX NAME)

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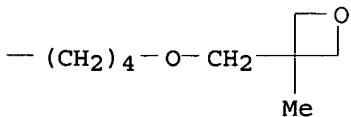
CRN 409083-45-0

CMF C39 H48 O10

PAGE 1-A



PAGE 1-B



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CRN 104558-95-4
CMF Unspecified
CCI PMS, MAN

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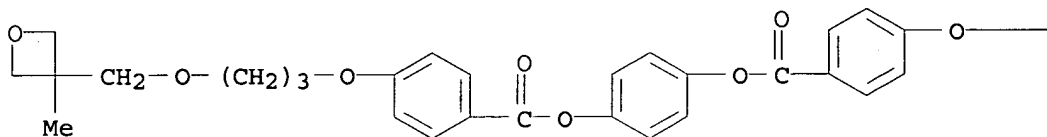
RN 409083-53-0 CAPLUS

CN Benzoic acid, 4-[3-[(3-methyl-3-oxetanyl)methoxy]propoxy]-, 1,4-phenylene ester, polymer with Cyracure UVI 6990 (9CI) (CA INDEX NAME)

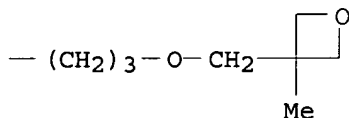
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CRN 409083-41-6
CMF C36 H42 O10

PAGE 1-A



PAGE 1-B



CM 2

CRN 104558-95-4
CMF Unspecified
CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***